

Flow Splitter

NAME: _____ DATE: _____

PURPOSE: Teaching / Practice
 Test Result: Pass / Fail / Retest

Scenario Overview

The scenario is set in the newborn care ward where a flow splitter has malfunctioned. Participants should assess and troubleshoot the device, implement needed repairs and return the device for use.

Reminder to Facilitator

The facilitator team decides what is essential for participants' understanding. We suggest the team underline or mark these essential items in the **INFORMATION/RESULT** column before beginning the session to ensure these are highlighted throughout the practice.

ALWAYS REMEMBER THE CANDIDATE SHOULD START WITH THE 4 Ss

Safety: for you, the staff around you and the patient on the device

Setting: for possible checks and repairs to the devices

Supplies: adequate tools and spare parts for this device

Shout: for additional technical support if necessary

Begin Scenario

SETTING THE SCENE: A nurse sends a patient attendant to your department with a note that says the flow splitter in the nursery doesn't seem to be working properly and please could someone come and help as soon as possible. **WHAT DO YOU DO?**

#	ACTION REQUIRED	INFORMATION / RESULT	COMMENTS:
1	Go to the ward and introduce yourself to the in-charge.	Sister Ngazi is glad to see you.	
2	Ask what the problem is.	The nurse has been trying to use the flow splitter all morning with various oxygen sources. She says that the flow splitter flowmeters are going up, but no flow is coming out of the ports.	
3	Ask to see the device.	The flow splitter is on a shelf on the wall. It is plugged into a walled oxygen flowmeter that is set at 10 L/min. No patients are currently hooked up to the flow splitter.	
4	Ask if it is okay for you to do some minor checks on the machine where it is.	Sister Ngazi is happy for you to do so.	
5	Perform minor checks on the device. Put on a pair of gloves. Open each flow splitter regulator and check for flow by placing a finger near each of the flow splitter outlet port. The oxygen source seems to be functioning well. The third port should be inspected further.	Flow is coming out of all ports except the third of five ports.	
6	What will you do next? Visually inspect the third port for debris or blockages.	There is what appears to be dirt and debris in the flow splitter port.	
7	Explain your findings to Sister Ngazi. One of the flow splitter ports has build-up in the oxygen port that connects to the patient. It must be further assessed and cleaned.	Sister Ngazi is told and shown what the problem is.	

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#	ACTION REQUIRED	INFORMATION / RESULT	COMMENTS:
8	<p>Explain next steps needed to prevent this from happening again.</p> <p>Debris can build up over time in flow splitter ports, although usually not to this extent. Users should provide preventive maintenance by turning on the device and letting it run for 15 minutes every week.</p>	<p>Sister Ngazi is told how to prevent such a problem from occurring. She believes that additional orientation is needed for the staff on the ward and sets a date for you to come and help explain why this type of preventive maintenance is necessary.</p>	
9	<p>Decide where to work on the flow splitter (e.g., at the ward or in the workshop).</p> <p>The flow splitter housing should be removed to look at the condition of the internal tubing. This can be performed at the nurse's station to prevent the device being removed from the ward.</p>	<p>Sister Ngazi is asked if it is okay to do some minor repairs at the nurse's station.</p> <p>She agrees that you may use the nurse's station to provide basic maintenance.</p>	
10	<p>You remove the flow splitter to the nurse's station. What will you do next?</p> <p>Document device information and note all components received with the device.</p> <p>Put on gloves. Disinfect the device housing using 70% alcohol.</p>	<p>The flow splitter has been brought to the nurse's station with oxygen source tubing.</p>	
11	<p>Begin further troubleshooting of the device. Check the condition of the internal components.</p> <p>Remove device housing screws and remove housing. Set aside screws in separate container.</p> <p>Visually assess the internal tubing connections for additional debris.</p>	<p>The device housing is removed.</p> <p>Dirt and debris are present inside the tube connected to the third port that is currently blocked.</p>	
12	<p>Repair the port and tubing.</p> <p>Gently remove the soiled internal tubing from the device. Using a cotton swab and soapy water, wash the tubing until all debris are removed. Rinse with 70% alcohol.</p> <p>Using forceps wrapped in cotton gauze or a test tube brush and soapy water, clean the flow splitter port.</p> <p>Reconnect the internal tubing to the flow splitter. Connect oxygen source tubing and oxygen source and let run for 5 minutes until any beads of liquid are dried.</p>	<p>The soiled tubing is removed and cleaned with soapy water.</p> <p>The port is cleaned</p> <p>The tubing is rinsed through with 70% alcohol and replaced. Oxygen is connected and run through for 5 minutes.</p>	
13	<p>Test the flow splitter.</p> <p>Open the third flow splitter regulator and check for flow by placing a finger near the flow splitter outlet port.</p>	<p>The flow splitter outlet port is relaying oxygen.</p>	
14	<p>Return the flow splitter to the ward.</p> <p>Go through repair and maintenance steps taken with the in-charge. Ask her to turn on and verify that the device is working well.</p> <p>Document corrective activities taken and next steps in maintenance & repair records.</p>	<p>Sister Ngazi is happy to receive back the device. She turns it on and is pleased with the results. She asks you not to forget to come and train the staff on the appointed day.</p> <p>Activities and CPD session orientation information are documented.</p>	

THANK YOU

REMIND PARTICIPANTS

Nearly all sick infants benefit from oxygen, especially those with respiratory distress. Hypoxia contributes to both morbidity and mortality.

INFECTION PREVENTION AND CONTROL

Be sure to wash your hands thoroughly and to put on gloves before handling any equipment. After every use, remember to disinfect all consumables and equipment before using them again.

Scenario end

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